

**CRAB ORCHARD NATIONAL WILDLIFE REFUGE CERCLA PROJECT  
MONTHLY PROGRESS REPORT  
APRIL 2018**

**ADDITIONAL AND UNCHARACTERIZED SITES  
OPERABLE UNIT (AUS OU)**

**1.0 Actions toward Achieving Compliance**

*Feasibility Study (FS).*

The U.S. Fish and Wildlife Service (FWS) continues to provide technical direction to Shannon and Wilson Inc. (SWI) on the draft FS. The draft FS will incorporate the results of the natural attenuation study. The draft pilot FS included a comparative analysis of alternatives for AUS Sites 0001, 0002, 0060, and 0A2B. About 120 comments were received from the agencies on the draft pilot FS. Written responses to Agency comments were distributed in March. FWS is working on the written responses for a small subset of remaining comments. The Federal Facility Agreement Agencies are discussing conducting monthly conference calls to resolve comments from the Agencies on the AUS OU RI/FS processes and build consensus on the remedial alternatives. Summary matrices for soil and explosives that integrate available risk and ARAR information were distributed to the Agencies on April 9th. The draft FS is targeted for August 2018.

*Natural Attenuation in Groundwater Work Plan and Quality Assurance Project Plan (QAPP)  
Addendum.*

USEPA approved the Natural Attenuation in Groundwater Work Plan and QAPP on March 27, 2018. Review of the preliminary data for the volatile organic constituents and carbon isotope data support degradation occurred in several wells. The results will be used to further inform alternative analysis in the FS. The remaining samples for TCE cometabolism samples will be collected early April.

*Sewer Line Vapor Threat Evaluation of Area 11.*

The findings suggest that the abandoned sewer line in Area 11 may function as a preferential migration pathway for contaminated groundwater and even perhaps create orphaned plumes. FWS continues to evaluate available information and the findings to assess the next steps. A final report is anticipated to be issued in June.

*Area 8 Copper Site*

The pond is contaminated with dissolved copper from buried waste in a dump along the shoreline and beneath the water. The concentrations of copper can exceed water quality criteria for the protection of aquatic life with sufficient water retention period, but not above human health standards. The pond in Area 8 South discharges surface water through a culvert or overflows a low spot of the road under heavy rain events or high water levels into the creek. Surface water samples are collected monthly and tested for dissolved copper at a location(s) near the culvert that discharges into the creek and where it overflows the low spot of the road. The dissolved copper concentration of 17 ug/l in a surface water sample collected April exceeded the aquatic water quality criteria.

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*Draft Evaluation of Future Groundwater Risk*

The results of the evaluation indicated risks for human and ecological receptors and pathways related to potable and non-potable uses associated with the purposes of the Federal facility including conservation, recreation, industrial, and agricultural. Written responses to Agency comments were provided to the Agencies on March 23rd. FWS is revising the Groundwater Risk Assessment.

*Site 0001*

FWS is preparing a technical memo evaluating whether Site 0001 should remain in the FS, because the single elevated concentration of arsenic could not be repeated.

*UXO Discovery*

Several landmine casings were discovered along former railroad tracks and drainage area that intersect a stream channel west of Area 7. A potential gas generator container was also identified in the stream bed at Area 12. FWS contracted with SRS to inspect and remove the landmine casings found on the surface and search for any more landmines that may have been deposited in this area and inspect the stream drainage in Area 12.

**2.0 Status/Results of Sampling, Tests, and Other Data**

- Preliminary results for groundwater samples collected for evaluation of natural attenuation the week of November 6, 2017 and January 1, 2018 were received January 17th and March 8th, respectively. The TCE cometabolism/ 14C samples were collected on March 21st, completing the field requirements for the NA Study. Preliminary gene results were received on April 23rd. Preliminary microorganism results are pending along with all validated data for all results.
- The results for dissolved copper and hardness parameters, calcium and magnesium, were received for the surface water sample collected April 5<sup>th</sup> from Area 8 South Copper Pond. The dissolved copper concentration of 17 ug/L exceeded the water quality criteria for the protection of aquatic life (acute criteria 5.4 ug/L and chronic criteria of 4.0 ug/L).

**3.0 Actions Scheduled for Next Month**

- Continue to provide technical direction to S&W on preparation of the FS.
- Evaluate results of monitored natural attenuation bench study.
- Complete written responses to comments on small set of remaining Agency comments.
- Revise tech memos for the Groundwater Risk Assessment and Sewer Line Vapor Threat Evaluation of Area 11.
- Explore options for management or containment of surface water at Area 8 Copper Pond.
- Conduct surface water sampling at Area 8 Copper Pond.
- Collect remaining groundwater samples for monitored natural attenuation study.
- Prepare for series of conference calls to resolve Agency comments and build consensus on remedial alternatives preferences. Agency conference calls are scheduled May 7<sup>th</sup> and 30<sup>th</sup>.

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**4.0 Modification or Delays Encountered or Anticipated**

Completion of the draft FS will proceed per the AUS OU SOW and is targeted for 2018. The draft FS will incorporate the results of the monitored natural attenuation bench study.

**5.0 Other Significant Activities**

None to report.

**6.0 Personnel Changes**

None to report.

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**AREA 7 PESTICIDES SITE  
NON-TIME CRITICAL REMOVAL ACTION**

**1.0 Actions toward Achieving Compliance**

*Action Memorandum*

FWS signed the Action Memo on April 4<sup>th</sup> selecting the preferred alternative from the Engineering Evaluation/Cost Analysis Report. The alternative consists of demolition of four warehouses, excavation of soils, off-site disposal of building materials and soils to a permitted landfill, and an option to include environmental covenants (e.g. residential re-use requiring additional assessment) in the Land Use Control Plan.

*Draft Remedial Design/Removal Action (RD/RA) Work Plan*

- FWS continues to provide technical direction to TRC on the removal action. Weekly coordination calls are held to discuss planning and details of the removal action.
- FWS distributed the Draft RD/RA Work Plan to the Agencies for review on April 6<sup>th</sup> and 10<sup>th</sup> (via link). The RD/RA Work Plan will be an attachment to the Consent Decree for the removal action.
- TRC distributed the Draft Sampling and Analysis Plan consisting of the Field Sampling Plan and Quality Assurance Project Plan (QAPP) Addendum #2 for the RD/RA Soil Sampling to the Agencies for Review on April 26<sup>th</sup>.

**2.0 Status/Results of Sampling, Tests, and Other Data**

None to report.

**3.0 Actions Scheduled for Next Month**

- Continue coordination and planning for the RD/RA.
- Host a conference call with TRC on May 7<sup>th</sup> with the Agencies to provide an overview of the RD/RA Work Plan.
- Review the draft Consent Decree.

**4.0 Modification or Delays Encountered or Anticipated**

None to report.

**5.0 Other Significant Activities**

None to report.

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**6.0 Personnel Changes**

None to report.

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**PCB OPERABLE UNIT**

**1.0 Actions toward Achieving Compliance**

*Plumes One and Three Operations and Maintenance*

Operations and monitoring for the Plume One pump and treatment system continued with about three days of down time due to a power failure. The average water flow through the system for the month was 3.1 gallons per minute. No PCBs were detected in the effluent.

The annual long term monitoring of groundwater quality was completed during the first week of April.

*Plume Two Remedial Design*

The consent decree amendment for the Plume Two interim remedy is under review by U.S. Department of Justice.

**2.0 Status/Results of Sampling, Tests, and Other Data**

The data analysis for the annual long term monitoring reporting is under development.

**3.0 Actions Scheduled for Next Month**

None to report beyond routine operations and maintenance of the pump and treatment system.

**4.0 Modification or Delays Encountered or Anticipated**

None to report.

**5.0 Other Significant Activities**

The FWS and AECOM are updating the QAPP package for the monitoring of the pump and treatment system and long term monitoring of groundwater quality since taking over the lead role from Schlumberger.

**6.0 Personnel Changes**

None to report.